

Installation Guide for Water Softeners or Nitrate and Tannin Filter Systems

Overview

- This installation guide gives a step by step, start to finish procedure for installing a basic Water Softener, Nitrate or Tannin Removal systems using Fleck valves. All of these systems will regenerate with softener Solar Salt or Potassium Chloride.
- Follow the instructions (available on our web site) for loading the media in the resin tank and installing the Fleck Control Valve BEFORE continuing with these instructions.
- Your new system comes with an owner/service manual, which, along with these instructions, will help explain all necessary details required for successful installation and operation of your system. Please refer to these instructions and the service manual supplied with your system during installation and programming.
- All steps provided herein are for typical installations only. If you require additional plumbing to install your system, simply contact a person who is knowledgeable in residential plumbing or have a local plumbing company help you install, or install the system for you.
- There is a bit of "over-kill" in our instructions, but please bear with us as we want to ensure that you, our customer, fully understand the instructions and are completely satisfied with your installation!
- We recommend that you take a few minutes and look at the service/parts manual for your particular model, to help you better understand your new water system. Take your time and carefully read the instructions.
- Get all of your plumbing parts together before you start, and have an assistant help you, if possible. Typical installation should take no more than a few of hours.
- If you are going to turn the water off to your house while installing the system, we recommend that you turn off the electricity to your electric water heater during installation. After the system is installed with water running through it, turn on a few hot and cold-water faucets, and let them run until there is no more air in your lines, then turn the electricity back on to your water heater.
- Our systems can safely handle a pressure range of 35-95 psi. However, as with most residential plumbing and for best operation causing the least wear on critical parts, we recommend an operating range of 40-65psi. Now all you have to do is plumb in the system, plug it in and set the current time of day!

Pre Installation

- Your system should be located in a protected, dry, level and non-freezing area. The brine tank and resin tank can have as much as 20 feet of 3/8" brine tubing connecting them. So, the brine tank can set several feet from the resin tank. The brine tank will hold 240lbs of softener Solar Salt or Potassium Chloride, so be sure to make it accessible for filling the tank with salt.
- We recommend a 1½" drain for the regeneration/backwashing cycles. If possible, the house drain should be no farther than 20 feet from the system. You will also need to purchase some flexible ½" inside diameter, plastic tubing from a local hardware or building supply store. This same size tubing will be used for both the valve drain fitting, and on your brine tank safety overflow fitting. (Always follow local plumbing codes).
- You will need a standard 3-prong, 120V, grounded outlet that is not controlled by a switch. Our Fleck valves have a 5' power cord, but you can use an extension cord if an outlet is not nearby. Please follow any local building/safety codes if you need to use an extension cord.
- IMPORTANT NOTE ! IF you decide to set the brine tank in your garage, remember that the water inside the brine tank will not freeze, but the water in the small 3/8" plastic water line running from the system valve to the brine tank will. Make certain the garage is warm enough to prevent this line from freezing!
- Make a list of all the plumbing fittings you will need to completely install the system to make it ready for operation. Assemble all tools needed to install the system, and start your installation!

Installation

1. Turn off the main water shutoff valve.
2. Next, open all plumbing fixtures in the house including all outside faucets in order to drain the lines of all water possible.
3. Cut and remove a section of the main incoming water line near where the system is to be installed. Allow this line to drain thoroughly.
4. Remove the yoke (or optional bypass valve) from the back of the tank valve by loosening the two small stainless steel clamps on either side of the rear valve assembly that holds it in place. Then simply pull it off the back of the valve. Now that you have the yoke or bypass valve removed, follow the directions below to make them ready to install on the valve.
5. INSTRUCTIONS FOR USING A YOKE. If you have a standard Noryl Plastic yoke, it will have two $\frac{3}{4}$ " or 1" male thread nipples, (one inlet & one outlet). You will need to buy two $\frac{3}{4}$ " or 1" Female thread adapters to whatever type and size of piping you are plumbing the system to.
6. INSTRUCTIONS FOR USING A BYPASS. If you are using our optional $\frac{3}{4}$ " or 1" brass bypass valve, you will need to purchase two $\frac{3}{4}$ " or 1" Male thread adapters to whatever type and size pipe you are plumbing to.
7. If you are going to use copper piping and be soldering joints, we do not recommend applying intense heat, to your new valve/meter assembly. We always recommend that you remove the yoke or bypass from the valve assembly, and attach your plumbing adapters to the yoke or bypass away from the valve. This simple step will ensure that you are not applying any heat as you solder or pressure as you tighten the adapters onto the yoke/bypass, while they are mounted on the valve body itself.
8. Another tip if you are using copper adapters. Always solder a 3" to 5" piece of copper pipe into each of the two pipe adapters away from the valve, then let them cool off before threading each one onto the yoke or bypass valve.
9. After they cool off, apply Teflon tape to the male threads of the Noryl yoke, (or onto the male adapters for the brass bypass valve), and securely tighten them to the yoke or bypass valve. Again, do this before you re-attach them back onto the rear of the valve/meter body assembly.
10. (Important!! WE DO NOT recommend connecting adapters to either the yoke or bypass valve, while the yoke or bypass valve is connected to the Valve/Meter assembly! You may exert too much pressure on the valve while securing the adapters, causing damage to the valve housing!)
11. After all soldering is finished and the adapters are securely threaded onto either the yoke or the brass bypass valve assembly, then attach the yoke or bypass valve back onto the valve/meter assembly and secure it with the two small stainless steel clamps.
12. Now position your conditioning system in place for the final water line installation.
13. Remember; If you are using our optional brass bypass valve, make certain the bypass valve is set in the "Service" position, while soldering the pipes to the system. Then return it to the "Bypass" position before turning your water back on to the house.
14. Measure and cut the lengths of pipe you need to plumb the main hard water line into your system. Then do the same for the conditioned water line that will exit from the system, back out into the house.
15. *NOTE* As you look directly into the two holes in your Fleck valve, the hard water line will always enter the hole on the LEFT SIDE of the yoke or bypass valve assembly. The valve body also has an arrow stamped into each side, showing the direction of flow.

16. If you use our optional bypass valve, arrows indicating water flow direction are printed on the top of the bypass valve assembly.

17. Just remember, that as you are looking directly into the two holes where the water enters and exits the valve, the hard water line from your house always enters the hole on the LEFT. The conditioned water flowing out from the system, back into your house is always the hole on the RIGHT.

18. If you purchased a Meter On Demand Water Softener, you will need to make sure the gold-tipped black cable protruding from the valve is securely plugged into the domed shaped portion of the rear of the valve.

Installing the Drain Line to the Valve

1. All of our Fleck valves have a drain hose barb, generally located on the lower, backside or side of the valve. First, check to make certain this drain hose barb is securely threaded into the valve body and that the threads have been sealed with Teflon tape.

2. Once you know the drain hose barb is installed properly, carefully push the 1/2" ID plastic drain hose completely over the barbed end of the fitting, and then attach a small hose clamp to the end of the line so it cannot work loose over time. Run the opposite end of this drain hose to the drain you are going to use for your system. Remember to leave a small air gap at the end of the hose going to the house drain. (Follow local plumbing codes), and secure it there.

3. When the system is in the backwash/regeneration mode, water will flow out of this drain line with a fair amount of pressure, especially during the "rapid rinse phases" of the process, and the line may sometimes "jump" a little when changing cycles.

Brine Tank Connection

1. Next, connect your brine tank to your system. One end of the supplied 3/8" brine line tubing will be connected to your brine tank and the opposite end needs to be connected to your Fleck valve.

2. Look inside your brine tank and you will see a 4" diameter "Brine Well" tube. Remove the lid off the top of the brine well and look inside this tube. Here you will find the "Brine Float" assembly. The brine float assembly works like a toilet tank float, shutting the water off inside the brine tank should the level of water get too high.

3. Check to see if the brine float assembly is loose inside the brine well tube. If it is, simply pull it up out of the brine well and look about 2" down from the top of the brine float assembly where you will see the metal end of a small threaded screw sticking out about 1/2". There will be a small black plastic nut threaded on it. Remove the black nut and then put the brine float back into the brine well. Notice there is a small hole drilled in the brine well, that you can insert this small section of screw through.

4. Hold the brine float with the section of screw in the hole as you put the small black nut back on. This is what holds the brine float in place.

5. On top of the brine float, you will see a larger black elbow with a black plastic nut. Carefully remove the black nut and you will find two small compression rings inside the nut, one black and one white. These small pieces help seal the end of the 3/8" tube that connects the brine tank with the valve on top of the system.

6. Each one of these small rings has a flat side. Hold the two small rings together with the flat sides touching. This is the way they fit together when they go inside the black nut, white piece first.

7. Next, insert one end of the 3/8" tubing through the hole in the side of the brine tank and brine well, and slide the black nut onto the tube with the threads facing the end of the tube. Then, slide the two

small compression rings onto the tube, white piece first, then the black piece making sure the flat edges of both rings are together.

8. Now insert the end of the tube into the black elbow as far as it will go. Hold it there as you thread the black nut onto the black elbow, tightening it finger tight which compresses the two rings inside the nut onto the tubing.

9. Replace the lid on the top of the brine well! Your brine tank is now ready to be connected to the Fleck valve.

10. Take the other end of the 3/8" brine tube and find the 3/8" brass nut located on the valve body of your system. Remove this brass nut and you will find a small plastic compression ring inside.

11. Slide the brass nut over the end of the tube, threads facing the end of the tube. Then slide the compression ring on with the narrow side facing the end of the tube.

12. Insert the end of the tube fully into the opening on the valve where the brass nut was located, then slide the compression ring and brass nut up the tube, finally threading the brass nut back onto the threads. Tighten the brass nut gently with a small wrench.

13. Notice the plastic elbow that is located on the side of your brine tank. This is a "Safety Overflow", and will use the same size drain line that is used on the valve drain (1/2" ID flexible plastic line). This drain line will not be under pressure, so it must be directed to a drain that is physically lower than it is. DO NOT connect this drain line into the drain line coming from the Fleck valve! It must be run separately to the drain.

14. Filling the Brine Tank. Different size units need different amounts of water available for brine, inside the brine tanks. It is better to have more water than less! A 24,000 grain unit needs 5 gallons, a 30,000 grain unit needs 6 gallons, a 45,000 grain unit needs 7 gallons, a 48,000 grain unit needs 8 gallons, a 64,000 grain unit needs 9 gallons, a 80,000 grain unit needs 12 gallons, a 110,000 grain unit needs 17 gallons. A 1.0 cu/ft Nitrate or Tannin filter unit needs 6 gallons while a 1.5 cu/ft Nitrate or Tannin filter unit needs 8 gallons.

15. Add 240 lbs of "Solar Salt" or "Potassium Chloride" to the brine tank, and you are now ready to turn the water back on!

Turning the Water Back On

1. INSTRUCTIONS FOR USING A YOKE.

2. If you are using the standard yoke with no bypass, turn all faucets in the house to the off position, except one faucet, (preferably an outside faucet, a laundry sink or bathtub).

3. Next, turn your water on slowly, letting this one faucet run open for a few minutes, allowing the water to rinse the inside of your resin tank out and settle the media.

4. Sometimes you may experience some light brown color rinsing off the new resin beads..... This is normal...and should only last a few minutes. This is why we suggest running the water through one faucet initially, to clear the softener of this colored water.

5. After a few minutes, and the water is running clear.....turn the faucet off and start opening each faucet in the house one by one until all the air is out of the water lines.

6. You now have conditioned water on your cold side! The hot water will take a couple of days to be conditioned as your water heater is full of raw water.

7. INSTRUCTIONS FOR USING A BYPASS VALVE. If you are using a bypass valve, make sure your bypass valve is now in the "BYPASS" position.
8. Turn your water on slowly, leaving all your faucets in the house open until water starts coming out of them. After they are all running steady and the air is out of the water lines, turn them off one by one. The raw water will be bypassing your system at this time.
9. Slowly open your bypass valve and begin filling the softener resin tank with water. In a few minutes the sound of water entering the system will stop.
10. Next, open one faucet, (preferably an outside faucet, a laundry sink or bathtub), letting the water run through it slowly for a few minutes. This allows the water to rinse the inside of your resin tank out and settle the media.
11. Sometimes you may experience some light/medium brown color rinsing off the new resin beads.... This is normal...and should only last a few minutes.
12. This is why we suggest running the water through only one faucet, to clear the softener of this colored water.
13. After a few minutes, and the water is running clear.....turn the faucet off.
14. You now have soft water on your cold water side.... The hot water will take a couple of days to become soft, as your hot water tank is full of hard water.
15. Finally, firmly insert the small brass end of the black Meter Cable, into the small hole located on top of the dome shaped Meter housing. The end of the cable will only insert about 1/8" - 3/16" into the meter housing hole.

Post Installation

1. Normally we will have already pre-set the meter on the system to regenerate, according to your water test results. If you are not sure what the meter is supposed to be set on, please give us a call with information on your water test results, and we will help you determine what setting to place your meter on.
2. Look in your service manual, for your particular model Fleck valve, and manually run your valve through a regeneration cycle. To do this, simply turn the manual "Regen" dial clockwise just a few "clicks" at a time, stopping at each setting for a minute, to clear the air out of the resin tank and valve. Once you have completed turning the "Regen" knob one complete revolution and it is set back to the "Service" position, the system is now ready for use!
3. Finally, plug the valve in the electrical outlet and set the current time of day. Our systems will regenerate around 2:00am.
4. Check all connections for leaks. You now have conditioned water!

Notes

- Even though you now have conditioned water in your cold water lines, your water heater is still full of raw water. Through normal use, this water will be replaced with soft water in about 2 to 3 days.